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December 2005

Worldwide Satellite Magazine

Vol. 3 No. 8

2005 in Review



2006 Rising

Your Satellite Connection to the World

SES GLOBAL

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NOTE FROM THE EDITOR

Oh What a Year!

Although as I write this, there's still a little over a month left in 2005, I think it's safe to say that it's been a good year for the industry. This is affirmed by the annual survey we conduct among CEOs who almost to a man, said they had a better year than last year. They also all expect 2006 to be even better.

In this issue we look back at 2005 and provide various perspectives. I summarize the year top stories in our cover story (page 16). We have regional reviews from our European and Latin American correspondents. Bruce Elbert looks at 2005 from the big picture of being the mid-point in the first decade of the new millennium. From all sides, it still looks like a great year.

However, when future historians look at 2005 for the satellite industry, the event that will stand out might not be the Intelsat-PanAmSat merger--which is undoubtedly very significant--but perhaps see it as the year when consumer satellite services first began taking off. Two major satellite broadband services were introduced in 2005--WildBlue in North America and iPSTAR in Asia.

Two Inmarsat satellites were launched dedicated to their mobile broadband service BGAN. Finally, satellite radio in the U.S. passed a landmark 8 million subscribers--the fastest medium to do so in history.

The consumer market is *mass* market. Nothing speaks of an industry coming of age than making it in the consumer market. Just look at what satellite did to TV. Now in the new millennium the challenge is to do the same to the broadband market.

With the good start in 2005--the future looks promising, indeed.

Virgil Labrador

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CALENDAR OF EVENTS 2006



DECEMBER

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JANUARY

January 15-18, Honolulu, Hawaii USA
PTC'06
 Shift Happens: Transition to IP
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FEBRUARY

February 6-9, Washington, D.C.
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MARCH

March 7-9, Dubai, United Arab Emirates
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March 21-23, New Delhi, India
Convergence India 2006
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APRIL

April 22-27, Las Vegas, Nevada
NAB 2006
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 Email: nab@nab.org / Website: www.nab.org

MAY

May 4-5, Copenhagen Business School, Copenhagen, Denmark
European Satellite Cultures Conference
 Julie Uldam
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 Email: esc@cbs.dk / Website: www.cbs.dk/esc

JUNE



June 13-15, San Diego Hilton Resort at Mission Bay, San Diego, CA, USA
ISCe Conference and Expo
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June 20-23, Singapore
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INDUSTRY NEWS

Sea Launch Delivers Second Inmarsat-4 Satellite to Orbit



A Sea Launch Zenit-3SL rocket lifts off from the Odyssey Launch Platform at 6:07 am PST (14:07 GMT) on Nov. 8, carrying Inmarsat-4 F2 communications satellite.

LONG BEACH, Calif. — Sea Launch Company successfully delivered on Nov. 8 the Inmarsat-4 (I-4-F2) communications satellite to geosynchronous transfer orbit (GTO). Early data indicate the spacecraft is in excellent condition, Sea Launch said.

A Zenit-3SL vehicle lifted off at 6:07 am PT (14:07 GMT) from the Odyssey Launch Platform at 154 degrees West Longitude and all systems performed nominally throughout the flight, Sea Launch said. The Block DM-SL upper stage inserted the 5,958 kg (13,108 lb.) satellite to geosynchronous transfer orbit, on its way to a final orbital position of 53 degrees West Longitude. A ground station at Lake Cowichan, in British Columbia, acquired the first signal from the satellite less than 25 minutes after

spacecraft separation, as planned.

Inmarsat-4 is designed to provide high-speed mobile service to people throughout the Americas during its 13-year service life. It is the second in a series of satellites designed to support the Broadband Global Area Network (BGAN) for high-speed delivery of Internet and intranet content and solutions, video-on-demand, videoconferencing, fax, e-mail, phone and LAN access.

One of a family of three similar spacecraft, this Inmarsat-4 F2 satellite carries a single global beam that covers up to a third of the Earth's surface, 19 wide spot beams and 228 narrow spot beams. It has a total end-of-life power of 13kW.

The first Inmarsat-4 satellite, I-4 F1, was launched from Cape Canaveral by International Launch Services on March 11, 2005.

Study Says Satellite Broadband Services Generating Solid Revenues, Creating New Markets

CAMBRIDGE, MA — Revenues generated by satellite broadband services, both for large networks and individual consum-

ers, will grow by an average of 8 percent globally in the coming years, projects Northern Sky Research (NSR).

In its "Global Assessment of Satellite Demand" study, NSR said leased commercial transponder capacity is expected to increase by more than 5 percent annually over the same period. Based on this growth, NSR forecasts that satellite broadband services will exhibit some of the greatest growth potential in the commercial satellite industry just after the mainstay video sector.

Leased Ku-band capacity alone should see a net gain of more than 250 transponders in the coming years, and uptake of new Ka-band based satellite broadband services in North America is exceeding expectations, NSR said.

"This is clearly a very dynamic market that is truly breaking out of its traditional corporate VSAT network space and beginning to prove its worth among both small businesses and consumers," said Patrick French, senior analyst for NSR. "SkyTerra Communications' recent purchase of the outstanding shares of Hughes Network Systems from DirecTV illustrates that in less than a year, the value and the strength of this sector has increased considerably."

HNS has recently reported topping 300,000 North American consumer and small business subscribers to its Direcway services, and newly launched competitor WildBlue appears to have overcome its equipment bottleneck that was created by higher than projected initial service take-up.

China Sells Satellite to Venezuela

CARACAS, Venezuela — China signed on Nov. 1 a new telecommunications satellite program contract with Venezuela. The contract was signed in the Venezuelan capital of Caracas on Tuesday with President Hugo Chavez attending the signing ceremony.

The Chinese government-owned China Great Wall Industry

Satellite broadband services will exhibit some of the greatest growth potential in the commercial satellite industry just after the mainstay video sector according to Northern Sky Research.



INDUSTRY NEWS

Corporation will design, manufacture, test and launch the VENE-SAT-1 satellite. The satellite will be based on the Dongfanghong-4 satellite template, and will be launched on a Long March-3B carrier rocket from Southwest China's Xichang Satellite Launch Center.

The satellite will be launched in 2008 from China, Venezuela's Ministry of Science and Technology said in a statement. Chavez announced that 90 Venezuelans will travel to China to take part in the construction of the telecommunications satellite. He added 30 Venezuelans will be trained to operate the satellite while another 30 will be trained to operate the teleport.

The VENE-SAT-1 deal is Great Wall Industry's first contract for a communications satellite to be delivered in-orbit for a Latin American customer. It is also the first satellite deal between China and Venezuela.

Dubbed the "Simon Bolivar Satellite," after the South American independence hero who inspired Chavez's socialist "revolution," the satellite will make Venezuela self-sufficient in telecommunica-

tions according to Chavez. The government statement added the satellite will have a positive impact on the economy and social life since it will boost medicine, education, and phone networks.

Thuraya's Third Satellite Targeted for Launch in 2007

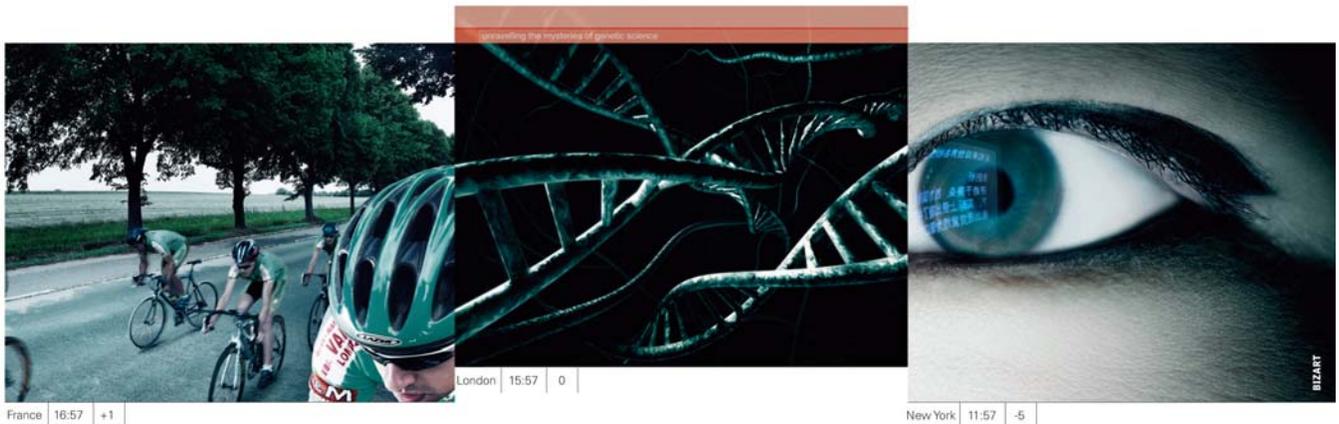
UAE — The UAE's Thuraya Satellite Telecommunications Company plans to launch its third satellite into orbit in 2007.

According to UAE news reports, the project is on but the company will float a tender for competitive bidding, Yousuf Al Sayed, chief executive of Thuraya, told the Gulf News.

He said construction of Thuraya 3 is on track and delivery might be a few months earlier than the scheduled June 2006 date. But he added the company doubts the commercial launch would take place in 2006 because Thuraya plans to issue a tender and get bids for the launch.

As early as June 2002, Thuraya has already contracted Boeing

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INDUSTRY NEWS

Satellite Systems to build Thuraya 3. It was also Boeing who constructed Thuraya 1 and 2. Thuraya-1, the first Boeing-built GEO-Mobile (GEM) model spacecraft, was launched by Sea Launch in Oct. 2000. Thuraya-2, also built by Boeing, was launched by Sea Launch on June 2003. Thuraya-3 is expected to join Thuraya-2 at an orbital slot 44 degrees East.

Malaysia's Measat Contracts Orbital for New Satellite

KUALA LUMPUR, Malaysia — Measat Satellite Systems Sdn. Bhd. (formerly known as Binariang Satellite Systems Sdn. Bhd.), a wholly owned subsidiary of Measat Global Bhd., announced on Nov. 11 the signing of a contract for the procurement of the Measat-1R spacecraft

from Orbital Sciences Corp. Measat -1R will provide high powered C and Ku-band capacity over Malaysia, Indonesia and the wider Asia-Pacific region. It will employ 12 C-band and 12 Ku-band transponders, each providing 36 MHz of bandwidth, over a 15 year minimum service life.

The Measat -1R C-band payload, providing a global single beam covering Eastern Africa, The Middle East, Asia and Australia, will be designed to support the next generation of telecommunications and video services. The Ku-band payload, with two focused beams providing coverage over Malaysia and Indonesia, will support new Direct to Home (DTH) video and data services.

“Measat is experiencing strong demand

for satellite services at our key 91.5°E orbital location,” said Tun Hanif Omar, director of Measat. “With the Measat-1 satellite operating close to capacity, and strong demand in leasing capacity on the new Measat-3 satellite, we see a clear need to replace the Measat-1 satellite when it reaches end of life and provide expansion capacity for our Ku-Band services,” he added. **SM**

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EXECUTIVE MOVES

ND SatCom Names Peng Ye New Managing Director for Beijing

FRIEDRICHSHAFEN, Germany — ND SatCom has appointed a new member to its executive management team.

Dr. Peng Ye joined ND SatCom as new vice president of ND SatCom AG and managing director of ND SatCom Beijing. The management addition reflects the company's direction to continuously expand its leading position in the worldwide satellite network solution market.

Before joining ND SatCom, Peng Ye, who holds a bachelor's degree in computer communications, a Ph.D. degree in information & software engineering, and an executive MBA degree, previously served as vice president of Motorola Asia Pacific Ltd. and general manager of China Netcom Operations.

Orbimage Adds James M. Simon, Jr., as New Board Member

DULLES, Va. — Orbimage Inc. has announced that James M. Simon, Jr. has joined the board of directors of its parent company, Orbimage Holdings, Inc. Following a distinguished career with the Central Intelligence Agency (CIA), Simon now serves as the founding director of the Microsoft Institute for Advanced Technology in Governments located in Reston, Va.

A career CIA officer, Simon was appointed by President Clinton and confirmed by the Senate in 1999 as the first assistant director of CIA for administration, a position he held until retirement in 2003. As deputy to the deputy director of Central Intelligence for community management, he was responsible for setting policy for and overseeing the budgets of the 14 agencies that comprise the intelligence community. After September 11th, he was designated as the senior intelligence official for homeland security establishing and chairing the Homeland Security Intelligence Council.

Currently Simon is the founding director of the Microsoft Institute for Advanced Technology in Governments. The Institute's purpose is to bring the fruits of Microsoft's world-leading advanced research and development activities to solve intractable problems for the global public sector. Simon's most recent position before joining Microsoft was as president and CEO of a consulting and services firm, IntelligenceEnterprises, LLC.

Simon was commissioned in the U.S. Army in 1969 and retired

from active reserve in 1997. His educational background includes a B.A. from the University of Alabama and an M.A. from the University of Southern California. He also has studied at the University of Maryland, the Johann Wolfgang Goethe Universitat in Frankfurt, the Bayern Staats Universitat in Munich, the Industrial College of the Armed Forces, and Harvard University.

Sirius Appoints Kozlowski as Senior VP of Strategic Sales Dev't, Roberts as VP of Retail Distribution

NEW YORK — Sirius Satellite Radio has appointed Stan Kozlowski as senior VP of Strategic Sales Development reporting to Jim Meyer, president of sales and operations.

Consumer electronics industry veteran Mike Roberts has also been appointed vice president of retail distribution, reporting to Bob Law, senior vice president and general manager, consumer electronics division for Sirius.

Prior to joining Sirius, Roberts was North American sales manager for Delphi Corporation with responsibility for overseeing all aftermarket sales activities for Delphi's Consumer Electronics Division, including satellite radio and mobile entertainment.

Before joining Delphi, Roberts served as vice president of Mobile Electronics for Kenwood USA Corporation, where he was responsible for overseeing all sales activities for mobile entertainment in the U.S. and Mexico.

Intelsat Appoints Dianne VanBeber VP of Investor Relations and Corporate Communications

WASHINGTON — Intelsat has announced that Dianne VanBeber has returned to the company in an expanded role, having recently been appointed vice president of Investor Relations and Corporate Communications.

With nearly 15 years experience in the satellite industry, Intelsat said, VanBeber brings a broad financial and marketing background to her position, and is responsible for Intelsat's relationship with analysts, investors, and the financial community at large. A veteran of over \$5 billion of public debt and equity offerings, VanBeber has played a key role in Intelsat's financing activities since initially joining the company in 2001.

EXECUTIVE MOVES

As the executive responsible for corporate communications, VanBeber sets the strategic direction for all of Intelsat's external and internal corporate communications activities, including its corporate giving and media relations programs, in addition to serving as the company's corporate spokesperson.

Prior to initially joining Intelsat in 2001, VanBeber was VP, Investor Relations at GilatSatellite Networks Ltd., where she established Gilat's investor relations office and was heavily involved in its broadband satellite initiatives. From 1994 to 1998, VanBeber served in a variety of business development and marketing roles at GE Capital Spacenet Services, ending as VP, Marketing, and during that time was also responsible for key business development initiatives in Europe and India.

VanBeber holds a B.S. in Business Administration and an MBA in Finance from the University of Kansas.

DigitalGlobe Appoints Jill Smith as President and CEO

LONGMONT, Colo. — DigitalGlobe named on Monday Jill Smith, who has a wealth of experience leading commercial technology companies in the Internet, software and electronic publishing markets, as president and CEO. Herb Satterlee will continue in his role as chairman of DigitalGlobe.

Smith was previously president and CEO of eDial, a collaboration software company that Smith successfully repositioned and grew, culminating in eDial's acquisition by Alcatel. Before that, she was COO of Micron Electronics, Inc., a \$1.5 billion direct PC manufacturer and marketer. While at Micron, Smith drove the PC business to profitability, and grew HostPro, Micron's award-winning Web hosting division, into the third-largest Web and application hosting company and a candidate for an IPO.

Smith co-founded and led Treacy & Company, LLC, a boutique consulting and investment business, and was CEO of SRDS, L.P., a private publishing and printing company that she successfully established as an electronic publishing leader.

Smith's earlier professional experience includes executive positions at Sara Lee Corporation and the role of vice president at Bain & Company. She earned a master's degree in business administration from the MIT Sloan School of Management.

In Satterlee's continued role as company chairman, he will be working with DigitalGlobe's defense and intelligence business unit, managing government relations around the world.

Snell & Wilcox Appoints Jonathan Goldstein as Americas President



Goldstein

BURBANK, Calif. — Media and entertainment industry veteran Jonathan Goldstein has been appointed Americas president of Snell & Wilcox, succeeding Dick Crippa, who will continue to serve the company in a part-time role as non-executive chairman. Goldstein will report to Simon Derry, Snell & Wilcox CEO.

Goldstein brings to his new position a 15-year track record of helping media and entertainment companies grow their businesses. Prior to joining Snell & Wilcox, he spearheaded a consultancy focused on building successful executive teams and sales forces for entertainment and new media companies.

Goldstein's career has included several senior roles in major global consulting firms, including the media and entertainment practice at Booz Allen & Hamilton and an executive role at The Walt Disney Company.

Goldstein holds MBA and Bachelor of Science degrees from the Wharton School of the University of Pennsylvania. He will be based in Snell & Wilcox's Burbank office.

Tandberg Television Appoints Eric Baron as President of EMEA

SOUTHAMPTON, UK — Tandberg Television has appointed Eric Baron to the newly created position of President of Europe, Middle East and Africa (EMEA).

Baron, who has been VP of Sales for EMEA at Tandberg Television for the past two years, will expand his remit to take on responsibility for the entire P&L performance of the EMEA region, Tandberg said.

In his new role Baron will be responsible for the sales, delivery and support of the full range of Tandberg solutions to customers across EMEA. In addition to managing and growing the company's direct and indirect sales channels, he will take responsibility for systems delivery and customer support.

Eric Baron has a strong track record in senior sales and operational management for multi-national technology companies

EXECUTIVE MOVES

such as Ericsson, Motorola and Sagem. For the past 10 years he has held sales and strategic direction roles that have seen him enter new market sectors, grow market share and turn around loss making divisions for leading European technology names.

Since joining Tandberg in December 2003, Baron has built a strong direct and business partner sales organization designed to support customers in local markets across continental Europe, the Indian sub-continent, the Middle East and Africa. In addition, Baron and his team have been driving new business in emerging sectors such as on-demand and IPTV. A French national, Eric Baron holds an MBA from Institut Supérieur De Gestion in Paris. He lives in the UK with his wife and son.

Tandberg is currently recruiting a new VP of Sales for EMEA to report to Eric Baron.

MSV Appoints NTP Founder Donald Stout to Lead Patent Management Strategy

RESTON, Va. — Mobile Satellite Ventures (MSV) announced on Thursday that it had reached an agreement with Donald E. Stout to lead MSV's patent licensing and enforcement efforts.

MSV said Stout brings to MSV an extensive legal and business experience in the management and enforcement of patents and is the founder and chief strategist of NTP. Stout prepared the original NTP patents and has managed NTP's successful patent litigation strategy. Stout will report directly to Alexander Good, vice chairman and CEO of MSV.

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EXECUTIVE MOVES

Stout said MSV has a substantial and growing portfolio of issued and pending patent applications on a multitude of key Ancillary Terrestrial Component (ATC) technologies. “My efforts will be directed toward securing the broadest and most comprehensive coverage possible from that portfolio and ensuring a proactive approach to protect rigorously these substantial assets,” he said.

MSV currently holds over 800 issued and 500 additional published ATC patent claims to date. These 1300 issued and published claims span the breadth of all ATC network features, functions and system components (including the satellite, terrestrial, satellite gateways and end user equipment). MSV has filed over 100 additional patent applications in the U.S. alone since 2001. Patent filings are in place not only in the U.S. but also in Europe, Canada, Mexico, Australia and elsewhere.

Gemstar-TV Guide Appoints David Nathanson Senior VP & GM, TVG Network

LOS ANGELES — Gemstar-TV Guide International, Inc. has appointed David Nathanson senior vice president and general manager of its TVG Network (TVG), an interactive horseracing network.

Nathanson is a long-time Fox Cable executive whose duties included the launch and operation of Fox College Sports, Fox Reality and Fox Cable’s VOD businesses. He assumes leadership of TVG from former TVG President Ryan O’Hara, who was named president of TV Guide Channel in August. Nathanson will report to Rich Battista, Gemstar-TV Guide’s chief executive officer, and will be based in TVG’s Los Angeles office. **SM**

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NEW PRODUCTS

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Satnews Publishers is offering a substantial pre-publication discount for its industry standard International Satellite Directory's 2006 edition. Now on its 21st edition, the International Satellite Directory is the definitive guide to the worldwide satellite industry with 2 volumes with 16 separate chapters and over 25,000 entries. The directory comes with a CD-ROM containing over 850 EIRP, G/T and SFD maps in full color. This best selling 1,400 plus page reference source is a must for all satellite professionals.

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For more information go to: <http://www.satnews.com/products/directory06.htm>

Etisalat Internet Subscribers Get Broadband Internet in the Skies

Dubai — Etisalat and Connexion by Boeing said on Nov. 14 they will jointly deliver high-speed in-flight WiFi connectivity to Etisalat customers.

Etisalat, through its Internet services and ICT unit eCompany, will be the first in the Middle East to offer high-speed wireless Internet connectivity on all aircraft equipped with the Connexion

by Boeing high-speed in-flight Internet service. The service will be available to customers beginning in January 2006.

Connexion by Boeing said dial-up and Al Shamil broadband Internet customers of eCompany will be able to access the Internet on flight through their WiFi-enabled laptops. They simply enter their current user name and password on the Connexion by Boeing in-flight portal to access the service in flight. Both Dial Up Internet and Al Shamil users can pay for their Internet surfing by receiving the Internet access charges in their monthly bill.

DataPath Unveils New Portable Communications Solution

DULUTH, Ga. — DataPath, Inc., a global telecommunications systems integrator, has introduced the DataPath ET 2750Q Portable for ground multiband communications, a fly-away terminal that enables users to establish voice, data and video communications links quickly.

Data Path said the ET 2750Q provides communications in remote areas where no information technology infrastructures exist and that are inaccessible by larger mobile satellite earth terminals.

The product provides simultaneous dual carrier transmission in four bands – C, X, Ku and military Ka – thereby delivering a new level of flexibility and reliability for communications in extreme environments. To bridge the gap between old and new technologies, the DataPath 2750Q is designed to enable complete internet protocol (IP) connectivity – even when interfacing with legacy systems. It empowers the military to capitalize on its deployed communications systems while simultaneously supporting its “everything over IP” (EoIP) network architecture transformation initiatives.

Designed for rapid deployment and quick teardown, the DataPath 2750Q ensures that soldiers don't spend significant time in vulnerable positions. A series of DataPath 2750Q configurations offer a single umbilical connection between cases to enable setup and operation in less than one hour, while also providing additional flexibility for use in diverse environments. The entire DataPath 2750Q package can be transported in transit cases by soldiers on foot.

NEW PRODUCTS

Telenor Satellite Services Unveils New Web-Based Account Management Tool

OSLO, Norway & ROCKVILLE, Md. — Telenor Satellite Services, a subsidiary of Telenor of Norway, launched on Nov. 23 “My Source,” a new online account management tool giving Telenor users more control of their satellite communications budget.

This new value added business tool offers customers of Telenor Service Providers using Telenor’s satellite products and services a full range of service management capabilities. My Source enables users to manage the use of satellite terminals and phones, select prepaid plans, automatically reload prepaid cards, and accurately view current call data.

Telenor said My Source also features Web Dial, an exclusive service from Telenor Satellite Services, that allows users to set up calls to anywhere in the world via the Internet. Web Dial permits users to manage a list or group of numbers that are accessed via an Internet browser to establish individual or conference calls. Also, because calls are routed through a Telenor global teleport, there is no special international access dialing required.

“My Source is designed to help the customers of Telenor’s Service Providers manage their communications resources in real-time, saving them time and money,” said Anders Kallerud, vice president of Telenor Satellite Services.

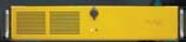
France Telecom Mobile Satellite Communications Offers Crew Calling Promotion

PARIS — France Telecom Mobile Satellite Communications is offering maritime customers a special crew calling promotion during upcoming religious festivals and bank holidays, enabling savings of up to 60 percent on prepaid calls.

France Telecom said the promotion will be available during the following periods:

ECLIPSE
A HIGHER STANDARD IN
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Christmas & New Year, Lunar/Chinese New Year, and Easter by using the Universal Happy Hour + card, part of Mobile Satellite Communications' pre-paid crew calling range, designed to facilitate the control of crew communications costs and reduce associated administration.

France Telecom said the promotion has the easiest and most transparent costing system on the market for prepaid solutions.

Terayon Offers Ad Insertion Solution for Telco IPTV Services

SAN DIEGO — Terayon Communication Systems, Inc. has announced a 'telco-optimized' solution that allows telecommunication service providers to create new advertising revenue streams to support their ambitious rollout of IPTV (Internet Protocol Television) services.

At the TelcoTV Conference & Expo, Terayon demonstrated how its new DM 6400-IPTV Network CherryPicker(R) enables telecommunication carriers to seamlessly insert local advertisements into MPEG-4/AVC encoded digital video, the format most carriers have selected for their digital video service offerings.

Advertising is a lucrative opportunity for telco carriers, as evidenced by the significant revenue it has provided broadcast and cable operators for decades, Terayon said. U.S. cable operators alone earned more than \$4.3 billion in local advertising revenues in 2004 according to Kagan Associates.

In addition to advertising, telco carriers can also use the DM 6400-IPTV for other important digital video applications. These include the aggregation of programming content from multiple sources, grooming customized channel line-ups by 'cherry picking' programs from multiple programming sources, supporting payload-aware program redundancy and emergency alert

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NEW PRODUCTS

system (EAS) messaging, Terayon said.

“Terayon has been at the forefront of the digital video revolution by enabling cable operators to deliver high definition and standard definition programming and to generate revenue through advertising insertion,” said Kanaiya Vasani, VP of Marketing. “Our new DM 6400-IPTV Network CherryPicker — which is ‘telco optimized’ with the new bundle of MPEG-4/AVC software and Gigabit Ethernet connectivity — provides telecom carriers with the field-proven ability to insert content and advertising in the digital domain, without the complexity and cost of decoding and re-encoding processes.”

WorldSpace Satellite Radio Lights Up Ahmedabad

SILVER SPRING, Md. — WorldSpace Satellite Radio, has announced the availability of its service in Ahmedabad, India, the seventh largest city in India with a population of nearly four million, including over two million consumers who fall into WorldSpace’s targeted listener base.

WorldSpace said the launch represents the company’s eighth city serviced in India, resulting in market distribution available to more than 50 million people across that country, including nearly 29 million from the top three economic segments. This market entry also adds 42 stores into WorldSpace’s retail points of presence.

“Making the WorldSpace experience accessible across India is a primary business objective in 2005,” said Noah Samara, chairman and CEO, WorldSpace. “We are excited that, with our eighth city launch, we continue to expand our presence and deliver an unmatched variety of local, national, and global content.”

With more than 40 radio stations that span a range of musical genres, news, sports and information, WorldSpace said its offering provides unsurpassed choice and digital-sound quality to subscribers.

DigitalGlobe, Valtus Team to Provide Imagery Via Secure Web Services

LONGMONT, Colo. — DigitalGlobe and Canada-based Valtus Imagery Services, a division of NorthWest Geomatics Ltd., have entered into an initial three year data distribution partnership to bring high-resolution commercial satellite imagery to Valtus customers via the Valtus Website.

Valtus said its customers who subscribe to the company’s Vista and Views online web services will now be able to access DigitalGlobe’s 60-centimeter resolution QuickBird satellite imagery in addition to Valtus’ already-large inventories of aerial data.

Vista (Valtus Imagery Services Terrain Archives) is a convenient online solution for users who require immediate access to downloadable, georeferenced mapping data. Views (Valtus Imagery Enhanced Web Service) provides instant, secure access to an extensive library of imagery that can be seamlessly integrated into mapping applications and geographic information systems (GIS).

In addition to delivering imagery from DigitalGlobe’s existing digital ImageLibrary (including DigitalGlobe’s CitySphere cities in Canada), DigitalGlobe said it plans strategic collections and delivery of large-area imagery in British Columbia, Alberta and Saskatchewan.

Satellite Communications Deploys Low Cost Calling Services for U.S. Armed Forces

RICHARDSON, Texas — Satellite Communications Systems, Inc. (SCSI) has announced that it has deployed the Carrius Compleat-200 Service Delivery Gateway as part of the implementation of its new contract to provide prepaid long distance and all other non-classified communications services for United States Naval Station Guantanamo Bay, Cuba (GTMO).

SCSI’s winning bid reduced the per-minute rate of prepaid long distance calling cards by nearly 84%. In addition to over 8,000 permanent residents, GTMO hosts many visiting naval and coast guard vessels, and their crews. To accommodate the permanent residents and visitors, SCSI maintains a call shop with a large phone bank for those without permanent phone service to use to make prepaid long distance calls.

SCSI said service members and their families may purchase prepaid calling cards at a number of locations across the base. The cards are usable for inbound or outbound calls to the base and are available to remote friends and family for low cost calling into the base. In addition to prepaid calling, SCSI’s network provides wireless, wireline and broadband and dialup Internet access services for the base. **SM**

COVER STORY

Top Stories of 2005

by Virgil Labrador

Oh what a year it was! And it's not even over yet. As we go to press for this issue (Thanksgiving weekend) there are still five weeks to go. Who knows what else could develop in this exciting year which saw the once unthinkable merger of erstwhile rivals Intelsat and PanAmSat, creating the largest satellite company in the world. 2005 is also the year where the satellite industry worldwide hit a landmark \$100 Billion in annual revenues, according to the Satellite Industry Association.

To recap, here are the years' top stories so far:

Intelsat-PanAmSat Merger

No two companies can be more different in the satellite industry. PanAmSat was the maverick company that first broke Intelsat's 20-year monopoly on international satellite communications in the 80s. Intelsat was later to lose its number one position in the industry in 2000 to Luxembourg-based SES Global. With the announcement of the Intelsat purchase of PanAmSat for \$ 3.2 Billion in August--it regained its preeminent position in industry. The combined Intelsat-PanAmSat company will have 53 satellites and almost \$2 Billion annual revenues--almost double that of the erstwhile largest satellite operator--SES Global.

However, as in any merger, the deal is subject to regulatory approval in the U.S.-- a process that could take up to a year. In our annual CEO survey (see page 19) SES Global CEO Romain Bausch downplayed the impact of the Intelsat-PanAmSat merger overtaking them as the largest satellite company in the world. He said that while Intelsat and PanAmSat will be busy with their merger they would be continuing to develop their business. In the same interview, Bausch did not discount the possibility of their going through "selective acquisitions." Meaning don't



Key Indicators Intelsat-PanAmSat Merger

	Intelsat	PanAmSat	Combined
Satellites	28	25	53
Annual Revenue	\$1.04 B	\$827 m	\$1.9 Billion
Employees	800	600	?

count SES Global out yet. They may even buy some of the redundant assets of Intelsat and PanAmSat as a result of the merger, as SES Global CFO Mark Rigolle recently declared.



An iPSTAR dish in China (iPSTAR photo)

Launch of New Broadband Services

2005 saw the launch of new consumer broadband services-- WildBlue in North America last June and iPSTAR in Asia in August. For a long time, the industry has been waiting for the broadband takeoff and WildBlue and iPSTAR may be the beginning of a consumer boom in satellite delivered services. WildBlue, a satellite broadband internet service aiming at the rural and SOHO market in North America not currently being served by terrestrial systems, has had very encouraging numbers of new subscribers in this niche market. The introduction of WildBlue in North America has revived the market for VSATs in the U.S. with more competition to come.

The iPSTAR service run by Thailand's Shin Satellite hopes to tap into the large Asian market for broadband services. With a revived Asian market and huge areas not served by terrestrial

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providers, Asia could be the largest potential market in the world for broadband satellite services. However, unlike the relatively homogenous North American market, the Asian market is a very fragmented and market spread over many countries with varying regulatory and other barriers to entry. How iPSTAR will be able to navigate this complex market and make a success out of it will bode very well for the Asian market.

Satellite's Role in Emergency Communications Affirmed

The Tsunami disaster which occurred late in December last year in Asia and the devastating Hurricanes Katrina and Rita in the U.S. once again demonstrated the pivotal role of satellite technology in emergency and disaster communications. Satellite companies stepped up to the plate and not only provided much-needed communications services, but donated much of their personnel's time, services and even cash and kind to relief efforts.

In many forums after the event, it was hoped that planers be more proactive and pay more attention on installing the necessary infrastructure to prevent future disasters instead of scrambling after the fact. The performance of satellite technology under trying circumstances during the recent disasters may have also made emergency and disaster communications a viable market segment for satellite services.

The Formation of the United Launch Alliance

Major U.S. Launch service providers Boeing and Lockheed Martin announced in May that they were creating a new company which will be a 50-50 partnership called "United Launch Alliance." The de facto merger has been anticipated for a long time in the struggling launch services market. The deal is still subject to regulatory approval.

Meanwhile, California-based startup SpaceX, which is aiming to provide much lower costs for satellite launches, filed a lawsuit in the U.S. District Court seeking an injunction against the merger, claiming it will stifle competition in the U.S. market especially for U.S. government contracts. SpaceX plans to provide launch services for about 30% of the cost of comparable launches. Its Falcon 1 rocket has yet to launch a payload, however, having just postponed its maiden launch at press for the middle of December.

With increasing competition in the launch service sector from lower cost alternatives Baikonour in Kazakhstan and China, consolidation is inevitable. It will be interesting to see who wins out eventually in this market as more new satellites are being ordered and demand for launch services pick up.



Satellite images like this provided vital support to relief efforts in the wake of Hurricane Katrina. (NASA photo)

Mobile Communications Goes Broadband

Leading mobile services provider Inmarsat launched two powerful I-4 satellites (Inmarsat 4) in 2005--one in March with coverage for the Indian Ocean region and another in November covering the Americas. The satellites are part of a planned four-satellite constellation that will cover the entire world, providing high-speed broadband services to mobile communications devices. The service is marketed under the name Broadband Global Area Network (BGAN).

The new Inmarsat satellites are envisioned to leapfrog the development of mobile broadband services. "The successful launch of the second I-4 satellite means that Inmarsat now has the world's most sophisticated commercial network for mobile voice and data services," said Andrew Sukawaty, CEO and chairman of Inmarsat.

"It will support an unprecedented evolution of our services - more than doubling the bandwidth available to our mobile users. It marks the beginning of a new era for Inmarsat, in which we expect to roll out a new range of global mobile services to government, aid, and enterprise users," he added.



Inmarsat-4 satellite

So far, so good for Inmarsat.

HDTV to Stimulate Satellite Capacity Demand

HDTV continues to drive satellite transponder demand with the continued growth of HDTV services in North America and Europe (see Europe feature page 24). This was affirmed by a

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study conducted by Northern Sky Research (NSR). "From a regional perspective, it is clear that North America and Japan have led the way in ensuring that HD has finally emerged from being a niche service to a more widely accepted standard and an eventual replacement for standard definition digital television," said Christopher Baugh, President of NSR.

The growing demand from HD programmers for satellite capacity is a welcome development to the industry given the falling transponder prices due to excess capacity. HD, with its high bandwidth requirements might just get the industry out of the glut in transponder capacity that it has been experiencing from some time now.

Satellite Radio Continues to Grow

Satellite Radio in the US continues its phenomenal growth with market-leading XM Radio hitting the 5 million subscriber mark during the end of the third quarter of 2005. XM Satellite officials said they are on track with reaching their year-end target of 6 million subscribers. Meanwhile rival Sirius Satellite is nearing the two million subscriber mark, making the total U.S. satellite radio subscriber base to be 8 million by the end of 2005.



Satellite Radio is already reaching over 10 million listeners in the US--the fastest medium ever to reach that number of people. The success of satellite radio only goes to show the potential in consumer satellite services.

Much to Be Optimistic

There certainly is a lot to be optimistic about the industry judging from the events of 2005. The satellite industry is showing great promise befitting the \$ 100 Billion industry that it has become.

SM



Virgil Labrador is the Managing Editor of SatMagazine. He is responsible for all editorial activities of Satnews worldwide. He recently co-authored the first book on the history of the satellite communications industry, *Heavens Filled With Commerce*. He can be reached at

virgil@satnews.com

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FEATURE

CEO Perspectives on 2005 and Prospects for 2006

For our Annual Year in Review issue, we asked the views of CEOs leading companies in the industry on how they saw 2005 and what are the prospects for 2006. Excerpts:



David McGlade
CEO, Intelsat

The industry stabilized quite a bit in 2005. There are certain regions that are growing at a more rapid rate than others,

such as North America and parts of Europe, Africa and the Middle East.

The PE interest in the industry in 2005 sticks in my mind as being a very positive development that we believe will help the industry grow and succeed. PE ownership strengthens companies because they instill greater financial discipline regarding the employment of capital and bring a fresh commercial perspective to an industry that in the past had been too technology centric or not concerned enough with customer requirements and financial returns.

Of course, we think Intelsat's announcement regarding the merger agreement with PanAmSat is also one of the most significant events of the year. We believe that the merger will create a strong satellite company that will lead the industry into a new era of technological advancement and customer service.

Intelsat performed well in 2005. As reported in our third quarter earnings, our revenues were up 10 percent over the prior year. Managed Solutions, the

portfolio of services that Intelsat launched to address the needs of customers that wanted hybrid solutions, has been performing extremely well. It has continued to grow every quarter as new customers come on board. As a matter of fact, it has grown from zero to a business with an annual run rate of \$120 million dollars (based on Intelsat's third quarter results) in a little over three years. The success of Managed Solutions has demonstrated that Intelsat is very attuned to the changing and evolving needs of our customers and that we are a market leader in introducing new services.

We believe that Intelsat's purchase of PanAmSat will have a positive effect on the industry as a whole; by creating a stronger entity we are ensuring continued investment in new satellites and innovative new services. Additionally, the combined company would have a fleet of 53 satellites, providing better back-up capacity and flexibility for customers.

Operators will increasingly need to work together with other companies in order to continue to innovate and support new services and applications arising from the convergence of technology. The well-positioned satellite operators of the future will be those who continue to find new ways to create customer value – be it with new products and services, network enhancements or geographic reach.

Private equity interest in the industry was a change and a positive development. In Intelsat's case, PE firms were attracted

by Intelsat's young and flexible satellite fleet, knowledgeable employee base and solid backlog of long-term contracts that result in attractive free cash flow. We believe that consolidation is beneficial to the industry and to customers, who will have access to more reliable capacity and significant reach, in addition to new and improved products and technology.



Romain Bausch
CEO, SES Global

The vast majority of SES' revenues is related to video distribution, an area where

market improvement in 2005 was highlighted by the impressive number of new TV channels coming online, the continued development of interactive TV services, and last but not least the introduction of HDTV in Europe. We continue to firmly believe that there are considerable opportunities out there for innovative, well-funded, and track-proven FSS satellite operators, be it in standard digital, HDTV, IPTV, Interactive TV and, increasingly, in mobile satellite applications. The soccer World Cup 2006 in Germany will provide the necessary impetus for HDTV in Europe; in the US we are resolutely embarking on IPTV with AMERICOM's IP-Prime platform; and in Germany our Blucom technology provides unprecedented user-friendliness for interactive TV applications by using Bluetooth enabled mobile phones to display "red button" functions and provide a return-path.

The yet to be consumed take-over of

FEATURES

PanAmSat by Intelsat is the most vivid example of renewed industry consolidation, a trend which was not least initiated by SES' acquisition of AMERICOM. SES is not overly concerned by the proposed merger. As a matter of fact it may even prove positive in so far as two of our main competitors will be busy merging whereas we remain firmly committed to developing our business, organically, but also through selective acquisitions if and when opportunities arise that correspond to our internal return on investment rates. 2005 will furthermore be remembered as the year when our largest competitors' new Private Equity owners were again seeking exit from the sector – some successfully, as in the case of KKR's "quick-flip" with PanAmSat, others so far unsuccessfully, as illustrated by Eutelsat's failed IPO.

For SES, 2005 was the year of resumed double-digit growth. As such it compares favourably with 2004, although I must point out that that in our main markets, namely Europe for ASTRA and the US for AMERICOM, the market conditions, for example with respect to pressure on transponder pricing, were never as noticeable as in other parts of the world.

SES intends to pursue its ongoing quest for double-digit recurring revenue growth, with the aim of mirroring the company's strong financial performance in 2005. To that effect we are counting mainly on organic growth, which does however not mean that we would disregard profitable selected acquisitions. I would like to point out that - between SES ASTRA, SES AMERICOM and SES SIRIUS - we are firmly committed to launch another 7 satellites in the next two years, and that this already impressive launch manifest is likely to further increase in the near future with new SES initiatives in Canada, Mexico and elsewhere. But in order to create additional shareholder value, you will also see us move down the value chain,

the aim being to stay not only the world's pre-eminent satellite operator, but to develop into a full-fledged, end-to-end, managed solutions provider. To that effect you may even see SES venture outside pure satellite plays, f.ex. offering hybrid solutions combining satellite and terrestrial networks.



Christian Pinon
CEO,
GlobeCast

Globally, I cannot see any market improvement for the civilian satellite

industry in 2005. If, on the positive side, satellite operators can benefit from the growing number of TV channels, from the globalization of their audiences and from the progressive appearance of HDTV, on the flip side, telephony, data, classical TV contribution will continue to decrease, IP backbone will remain a commodity business, and IP access will continue to vanish. Is this a problem for my company? Not at all as GlobeCast is no longer a MHz reseller. I'll come back to that later.

Having excellent relations with Intelsat and PanAmSat, if their future is to merge, I am fine with that. Anyway it remains a 36 000 Km distant issue, involving mainly fleet optimization; as you know, GlobeCast is not at that level, we remain in a very humble way "on the ground", dealing with value added services, relying on satellite and terrestrial solutions for that, playing with MPEG and IP... for the sole benefit of our customers.

GlobeCast did great in 2005. We are a well known, appreciated and celebrated teleport operator, which is our historical mission — we started the year as World Teleport Association's 3rd largest ranked teleport operator, and our America CEO David Sprechman, was named WTA's 2005

Teleport Executive of the Year. We are also now recognized as an innovative company in the field of multimedia contribution and distribution services. In the contribution area, I will mention the Cable & Satellite International "Product of the Year" Award given to our WING Content Exchange platform for "Best Outside Broadcast Technology"; in the distribution area, the Store & Broadcast solution chosen and praised by our eminent customer, E! Entertainment. I will also underline the key technical role we play for the Orange Group, aggregating and repurposing some 60+ TV channels for live broadcast on cell phones.

2006 will not bring any disruption to those trends: satellite operators will go on optimizing their fleets, pruning them or merging them... which is not my concern. GlobeCast will go on its way, consolidating its content management policy and reaching dividends in terms of growth (4% target).



Robert McCollum
CEO, Comtech
EF Data

Comtech EF Data's parent company, Comtech Telecommunications Corp., reported

record performance in fiscal year 2005, which was driven by strong demand for products across all three business segments. Net sales for fiscal 2005 increased 38% over fiscal 2004.

A primary driver in the satellite industry over the past year was the user requirement for additional value. Customers are seeking cost-effective solutions that enable them to lower their total cost of ownership and reduce space segment costs. Recognizing these needs, Comtech EF Data developed a bandwidth optimization tool to assist users in validating the

FEATURES

possibilities for optimizing satellite bandwidth utilization and throughput using realistic link and earth station configurations. Our product development has focused on delivering forward error correction, modulation and bandwidth doubling technologies to enable rapid return on investment to be realized. And, our efforts of integrating our products with those offered by our subsidiary, Memotec, and our sister division, Comtech Vipersat Networks have been focused on providing solutions that minimize operating expenses and maximize transponder utilization.

We remain optimistic about our business and believe fiscal 2006 is positioned to be another record year for Comtech. We believe that the need for defense and surveillance applications, the expected long-term growth of Internet traffic and the need for emerging countries to build modern communication systems will result in increased satellite bandwidth demands. Additionally, within the broadcast sector, we expect to see the adoption of DVB-S2 to take hold for satellite news gathering (SNG) applications. The bandwidth efficiencies offered by ground equipment implementing this new standard will enable SNG customers to lower their total cost of ownership and minimize operating expenses.



Karl Classen
CEO, ND Satcom

We are clearly seeing that the rapidly growing economies such as China, India, Russia and Middle East are fueling

growth for satellite communications in the telecom, broadcast, government and defence markets.

Of course key events of the past 12 months were clearly the Sumatra tsunami

in Asia and hurricanes Katrina and Rita in the US which painfully helped us to realize once more that satellite communication is the only means to rapidly restore urgently needed communication infrastructure for the relief and aid organizations. The role of satellites is therefore crucial in our fast changing and as it seems increasingly unpredictable world.

2005 has been another good year for ND SatCom, we increased considerably our business compared to 2004. The ND SatCom Defence group worked very hard on the acquisition of the German Armed Forces phase II miltatcom program. Pursuing our globalization strategy, we are increasing our local engineering and system integration capabilities in our main regions Americas, China and Middle East. This will enable further customization and localization of our offerings for our telecom, broadcast, government and defence customers. Reacting on the request of our customers to offer end-to-end solutions we started to offer managed network services based on our technology. To capture the growing satcom market in India, we have improved our presence through a joint venture. This will allow us to be more competitive in this market and to serve our existing customers better. Also, we expanded market presence in Turkey, through acquisition. This will allow us to benefit from the growing demand in this region.

Regarding new products, we successfully launched SkyVIP at the IBC conference in Amsterdam. This product covers the demand for small high performance IP star based broadband applications. For our mobile solutions we introduced our fully automatic satellite access systems which allow easy operation for non technical professionals.

We see growing opportunities in mobile and fixed satcom solutions for specific governmental applications. For example, in areas such as: disaster recovery and relief. Here customers are faced with demanding video or multisite

video conferencing requirements. ND SatCom's experience and expertise as broadband technology supplier, system integrator and system house shows to our advantage how we deliver these complex customized solutions.

Our fortunate challenge for 2006 will be to manage organizational growth to realize our commitments to our customers.

Over the next year, I expect the satellite industry's main business drivers still to remain the same, with defence and government solutions and services continuing to sustain the market in the quest for national security and disaster response. In broadcast we will see how HDTV will get a further push through the 2006 FIFA World Cup Germany.



John Kealey
CEO
iDirect
Technologies

iDirect continues to see improve-

ment in our business, and the market as whole. We sold our 200th VSAT IP Hub in 2005. That was a real landmark. It took iDirect two and a half years to sell the first 100 hubs, and just 10 months to sell the second, so I think we can demonstrate a real growth trend.

In general I think consolidation is a positive trend. This really won't have any impact on end user demand, so larger, more financially secure providers can only help the industry. As long as there is still sufficient competition to insure customer needs are being met, and the industry as a whole continues to find new and innovative ways to utilize available satellite capacity to create new solutions I don't have any concerns about consolidation.

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iDirect had a great 2005. We just completed our 15th consecutive quarter of revenue growth, and we will end the year almost double last year's revenues. In addition, iDirect won a number of honors this year including being named number one in the Deloitte Virginia Technology fast 50, number 19 nationwide, number 17 on the Inc. 500 list, the Innovation & Technology of the Year by the ISCe Advisory Board, and the Teleport Technology of the Year by The World Teleport Association. To cap it all off, iDirect was acquired by Singapore Technologies this year. This new partnership is going to open a lot of doors for iDirect. 2005 is going to be a really tough act to follow, but we're already looking forward to the next 15 quarters of consecutive revenue growth.

2006 is going to be another banner year for iDirect and the industry. I think some of the recent disasters around the world have shown how vulnerable traditional landline communications are, and the inherent benefits satellite offers. There is a great opportunity for the satellite industry to help first responders work more effectively, and help enterprises around the world protect their communications from disaster. The key is going to be continuing current trends, i.e. delivering satellite access comparable to landline quality, and increasing the efficiency of satellite bandwidth.

The biggest challenge the satellite industry faces right now is the continued build-out of terrestrial broadband coverage. The satellite industry won't be able to focus on markets where we are the only game in town much longer. Satellite will need to identify more applications and solutions where the benefits of satellite make it a more practical or cost effective solution than competitive networks, and look beyond traditional satellite applications. Satellite connectivity offers a number of great benefits. The ability to share capacity over a huge geographic footprint, more cost effective coverage in less populated areas and certain terrains,

speed of deployment, and security from disasters. It's our job to identify these opportunities and demonstrate them to our customers.



Paul Brown-Kenyon
CEO, MEASAT

2005 has been an exciting year for the industry. This statement is especially relevant to the Asia Pacific

where 2005 saw the continued development of broadcasting in the region – with both cable and DTH showing good progress – and the launch of a number of broadband DTH services. Overall, market demand showed an improvement with transponder pricing beginning to recover.

2005 has been a busy year for MEASAT. Over the course of the year we made significant progress. Specifically:

- Earlier this year we moved our operations into a new facility — MEASAT Teleport and Broadcast Centre – just outside of Kuala Lumpur. The facility not only supports our satellite control center, but also supports a range of customer services;
- During the course of the year we saw continued progress on the MEASAT-3 program. Built by Boeing, this satellite will significantly increase MEASAT's ability to serve the DTH and Broadcasting segments across our core markets while expanding our services to South Asia and Middle East; and,
- In November MEASAT signed with Orbital Sciences to deliver the MEASAT-1R satellite. Schedule for launch at the end of 2007 the satellite will provide an additional 12C Band 12

Ku Band transponders at our key 91.5 location.

In addition to investments in new infrastructure, our business also continued to grow with our network operating at a utilization rate of around 80%. Over the course of 2005 we saw the continuing increase in our customer base with a number of new regional broadcasting customers including Asian Food Channel, GoalTV and JiaYu.

We are hoping that 2006 will see a further development of the broadcast and broadband businesses, leading to further strengthening of demand. From MEASAT's perspective, the key challenges will be around bringing the new satellite into operation and supporting the growth of the DTH and Broadcast Distribution services.

The most significant changes in the industry this year were at the structural level. The change in ownership of some of the major global operators has now led onto the merger of two of these operators — Intelsat and PanAmSat. These structural changes can be expected to continue in 2006 and 2007 with further consolidation at the Global and Regional levels.



Dr. Denis Curtin,
COO, XTAR, LLC

As 2005 draws to a close, there appears to be a definite and very encouraging up tick in the business. Particularly compared to the depression of the previous few years. Without question the most significant event of the year was the Intelsat/PanAmSat announcement, which will have far reaching consequences on our industry.

FEATURES

Closer to home, the launch of our first satellite, XTAR-EUR, was a significant development for us in 2005. Not just for our company, but also for the DoD and civil government user community. As the only commercially available X-band capacity dedicated to U.S., NATO and Allied governments, and the first to provide dual polarization in this frequency, XTAR-EUR will provide much needed bandwidth to our own and Allied military forces while supporting development of “comms-on-the-move”, Manpacks and airborne relay terminals.

Other key events in 2005 were the increasing role of private equity firms in the satellite business and the successful launch of the Wild Blue and Spaceway services. However, it's still early days and the promise of true consumer broadband has yet to play out.

The successful launch of our first satellite in February got our year off to an excellent start. After entering service in April, we conducted a series of demonstrations with XTAR-EUR that more than exceeded expectations of the U.S. Army and Air Force personnel who participated in these demos. For example, in one of these demos, the Army independently validated a previously unheard of data rate of 105 Mbps using a ground mobile force TSC-85C tactical SATCOM terminal coupled with the Army's 16' Light-Weight High Gain X-band Antenna (LHGXA). This terminal is normally limited to 1.2 Mbps by DISA due to current operational constraints on the current DSCS satellites.

By year's end, we had secured lease contracts from the Spanish and Danish Ministries of Defense, and the U.S. Department of State's Diplomatic Telecommunications Service Program Office (DTS-PO).

As the only commercial provider of X-band services, we see tangible opportunities ahead for XTAR in 2006, starting

with the first quarter launch XTAR-LANT which will extend our X-band reach from Denver all the way east to Singapore.

Already the U.S. military is experiencing a shortage of X-band capacity. Reports of delays or budget shortfalls in several key DoD programs, such as Wideband Gap Filler, MUOS or T-Sat, will only add to this X-band capacity deficit. According to DISA reports, there are approximately 85 transponders (C, Ku & Ka band) on lease, totaling over 4 GHz of capacity. By comparison, XTAR-EUR's 12 transponders, each capable of 200 Mbps, could provide a total 2.4 Gbps - or almost half of DISA's capacity.

The biggest challenge facing companies like XTAR and others selling capacity to the military is the U.S. Government's continued reliance on short term contracts. XTAR shouldered the entire financial risk of building, launching and operating its system based on the Government's stated demand for additional bandwidth. However, unless and until the Government is willing to enter into pre- or long term contracts, satellite operators in general will be unwilling to jeopardize capital investment on speculative satellites, leading to an even greater bandwidth capacity deficit in the long term.

For the industry in general, we will begin feeling the full effects of the Intelsat/PanAmSat merger and other M&A activity in 2006. The ripple effect from fewer operators will make the market less competitive, while satellite manufacturers, launch providers and equipment makers and suppliers will start feeling the pinch.

Again, the over arching change taking place in our business is the growing influence of private equity firms and the move toward consolidation of operators and perhaps even suppliers. While making for a tougher competitive market, this shrinking of the market should

also bring about great efficiencies of scale and economy.



Steven Teller
President
IOT Systems, LLC

2005 was a much better year for the

industry. It is clear that the many satellites launched in the 1990s are now due to be replaced. Consequently I see increased work for the satellite manufacturers and an up tick in capital equipment expenditures.

Our business has been growing steadily for the last few years and 2005 was a particularly good year for IOT Systems.

I see continued improvement throughout all sectors in 2006. As the industry rebounds and emerges stronger and healthier, we expect to see stepped up efforts to reduce costs and increase efficiencies, particularly in view of the growing role of private equity investors in the business. We anticipate continued growth opportunities for our business as these PE firms look to outsourcing as an effective cost management tool.

We definitely saw an increase in orders and order activity. I think there will be a greater focus on core business strengths and a move to outsource non-core support capabilities in 2006. This trend toward cost management, increased competency and operational efficiencies will benefit all industry sectors. **SM**

FEATURE

2005: What a Spectacular Year for Europe!

by Chris Forrester



The satellite industry has had an exciting time these past few months. The current round of consolidation between Intelsat and PanAmSat is just the latest bout of “eat, or be eaten” mantra that we have all grown used to. And, seemingly, there’s more to come. SES Global’s CFO Mark Rigolle told a November conference hosted by Morgan Stanley, that SES was interested in looking at any of the Intelsat or PanAmSat orbital assets that might come up for sale once the deal closes.

“They have some slots that would help us,” Rigolle told journalists in Barcelona. “We will grow by acquisition ... if we can find suitable ones to fill certain gaps in our global coverage,” he said. Rigolle added that SES also had its eye on increasing its stake in Germany’s ND Satcom, in which it currently holds a 25% stake, or might even buy Turksat in Turkey or Greece’s Hellas Sat. “These are by no means transformational deals that would wreck our balance sheet for five years,” he said. Rigolle declined to

comment on the report that SES Global was in the market to buy New Skies Satellites, but he admitted that NSS’ coverage of the Indian Ocean region and Latin America were of interest.

SES Global’s share price at the end of November was around EUR13.40, but Morgan Stanley is predicting a target

price of EUR16.50, which is optimistic despite SES Global’s strong performance and expectations of double-digit growth this next couple of years. But the reason is Echostar, and a strong hint from the bank that Echostar will give a huge slice of business to Americom that’s worth, at the end of the day, four new satellites. “A risk specific to SES is that we are incorrect in our assumption that Echostar will contract all of the new capacity identified above. We note that •1.5/share of our price target of •16.5/share is attributable to these new Echostar contracts,” said the bank.

But if Intelsat+PanAmSat are busy planning their future lives together, and SES Global is looking for its next meal, and perhaps it is fair to say that New Skies will see itself sold, unfortunately the world’s “third-largest” satellite operator, Eutelsat, is having to lick its wounds and prepare to fight another day.

Eutelsat embarrassingly pulled its Initial Public Offering (IPO) on October 27.

Far from being an independent player Eutelsat might now be prey to the wolves and sharks, and thus with an uncertain future. A recent interview with CEO Giuliano Berretta, and senior shareholder Eurazeo’s Gilbert Saada, provided the distinct message that it was “business as usual” at the Paris-based operation. But cancelling its IPO (originally the IPO planned to see between 38% and 51% of Eutelsat’s equity transferred into public hands. Assuming a mid-point offering of around •16.50 a share, this would have seen a net •824m in proceeds, enough to reduce debt as well as boost acquisition possibilities for non-organic expansion.

It wasn’t to be. Eutelsat’s IPO was originally timed to take place on October 25, but it became clear that investment interest was less than buoyant, and this sentiment not helped by a very nervous market. Consequently, Eutelsat’s owners (Eurazeo, Spectrum Equity Investors, Texas Pacific Group, Cinven and Goldman Sachs Capital Partners) changed their minds, and dropped the IPO offering price by 22%, thereby granting investors a significant – and very tempting – discount to the original offering price, and by implication suggesting that incoming investors could expect a handsome profit post-float. Again, it was not to be.

While the market gossip suggested that the offer was 100% subscribed, the IPO was pulled. But the strong message from CEO Giuliano Berretta, and at least two of his major investors, was that they were fearful that Eutelsat’s stock was almost bound to fall, and perhaps dramatically, on its first trading day – hence the decision to cancel the offering.

FEATURES

Where next for Eutelsat?

- IPO remains an interesting option, but not a ‘must have’
- Most sponsor/investors taking a longer-term view
- Core business margins/back-log remain sound
- Debt is manageable
- `Months, or more, until a fresh attempt
- Company now gets back to basics
- Fundamental valuations remain strong
- (but initial IPO offer price was too high)
- Market sentiment must change before fresh attempt
- CEO Giuliano Berretta stays

Global, for example, saw its own stock price suffer badly throughout this period, hitting a •12 low, at the time Eutelsat pulled the plug on its offering. But the following day (Oct 28) saw a positive bounce for SES to •12.63, and a subsequent steady rise to about •13.40 over the following

from Eutelsat’s difficulties. Seemingly, at least some of the investors who HAD planned to invest in Eutelsat were left with their cash burning a hole in their pockets, and plumped instead for SES Global as a long-term investment vehicle.

Eutelsat’s initial indicative value of EUR16.50 (mid-price) suggested a breathtaking 24% premium over SES Global. There are two ways to look at this, one being that SES Global’s share price is the best bargain in town (which it might well be) or that Eutelsat’s valuation is simply make believe. One banker’s report says it doesn’t believe Eutelsat – even though it is a perfectly sound business – deserves a premium over SES, which has:

It’s long been said that “a rising tide raises all boats”, but Eutelsat’s troubles prove that the tide also goes out! SES

days, although still well below its •14.18 high back on September 2nd. In fact, SES Global seems overall to have benefited

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Eutelsat - Satellite fleet by age*

Satellite	End of life	Launch	Ownership	Position	# Transp.
HotBird 1	Apr-06	Mar-95	Owned	13°E	16
Telecom D2	Oct-06	Aug-96	Leased	8°W	11
Express 3	Jul-07	Jun-00	Leased	11°W	5
W2	Jul-09	Oct-98	Owned	16°E	27
HotBird 2	Oct-09	Nov-96	Owned	13°E	20
Sesat 1	Jan-11	Apr-00	Owned	36°E	18
Telstar 12	Oct-11	Oct-99	Leased	15°W	4
HotBird 4	Jan-12	Feb-98	Owned	13°E	16
HotBird 3	Jul-12	Sep-97	Owned	13°E	20
W6	Jul-12	Apr-99	Owned	21.5°E	28
EuroBird 2	Apr-13	Oct-98	Owned	25.5°E	16
Atlantic Bird 1	Jan-14	Aug-02	Leased	12.5°W	19
EuroBird 3	Jul-14	Sep-03	Owned	33°E	20
Sesat 2	Jan-16	Dec-03	Leased	53°E	12
W1	Jul-16	Sep-00	Owned	10°E	28
W4	Oct-17	May-00	Owned	36°E	31
W5	Jan-18	Nov-02	Owned	70.5°E	24
HotBird 6	Apr-18	Aug-02	Owned	13°E	32
EuroBird 1	Apr-18	Mar-01	Owned	28.5°E	24
Atlantic Bird 2	Oct-18	Sep-01	Owned	8°W	26
Atlantic Bird 3	Oct-18	Jul-02	Owned	5°W	37
W3A	Jul-22	Mar-04	Owned	7°E	44
Eutelsat II F2	Inclined orbit	Jan-91	Owned	48°E	16

*Source: Eutelsat

Eutelsat - Profit and loss account, June 2005-09E*

Year end June (€m)	2005	2006E	2007E	2008E	2009E
Sales	750	772	794	833	871
% Change	(1.3%)	2.9%	2.8%	5.0%	4.6%
COGS	(49)	(51)	(52)	(53)	(54)
Gross profit	702	721	742	780	817

*Data: Company reports/bank estimates

- better growth prospects,
- greater exposure to the rise of HDTV,
- a higher return on capital employed,
- stronger visibility, and
- a more attractive valuation

“We know the true value of [Eutelsat] better than anyone,” said Gilbert Saada, of Eurazeo. “But we were not successful in convincing the market, or even the bankers who work for us who were not convinced!” Indeed, calmer heads now seem convinced that the strategy, which eventually priced Eutelsat

at around •12.00-•13.50, was in the right range and anything lower represented too severe a discount for the business.

While, on the one hand, it might be said that Eutelsat’s prospects now look tougher, at least in the short term. There’s little of Berretta’s long-anticipated financial flexibility to grow the business – or even cut debt. However, on the other hand, and as Mr Berretta – and others - reminded us, the company’s core business remains absolutely sound, with

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HDTV in Europe			
Region:	Broadcaster	Platform	Start date
Pan-European	Euro 1080/HD1	SES-Astra (19 degrees East) Sirius (5 degrees East) Cable: Ish and Kabel Baden Württemberg (Germany); Monaco Cable (Monaco); CAI Krimpen aan den IJssel, Openbare Nutsbedrijven Schiedam, Stichting Regionale (Netherlands)	Jan 2004 (HD1 moves to Astra 1D/3A, 23.5 degrees East from December 2005)
	Euro 1080/HD2-HD5	SES-Astra (19 degrees East)	Now live
Scandinavia	C More	Canal Digital (Thor 1 degree West)	Live September 2005
Sweden	SVT	TBC	Summer 2006
France-Demo	HD Forum	Eutelsat	Now live
France-Demo	Canal Plus	SES DTT trial	Demo Live ("early 2006" full service) Mid-November
France	TPS	Eutelsat	"pre-Christmas"
Germany	Premiere (3 channels Premiere HD Film Premiere HD Sport Discovery HD)	SES	Demo Live (Launch December 3)
Germany	Sat 1	SES	Live October 27
Germany	Pro 7	SES	Live October 27
Germany	HD-HIT	Cable	Live October 25
Italy	Sky Italia	Eutelsat	"mid-2006"
The Netherlands	Astra Test Channel HD1 Canal+ HD Test Channel (France) Pro 7 HD	CAI-W (Cable)	
The Netherlands	UPC	Cable	Summer 2006
UK	BBC (BBC One HD)	SES-Astra DTT (London)	Mid 2006 (BBC Broadcast/Red Bee Media test on-air)
UK	BSkyB Up to 12 channels including Sky Movies Sky Sports Sky One Discovery HD MTV Nat-Geographic Artsworld	SES-Astra (28 degrees East)	Now testing. Spring 2006
UK	ITV	SES-Astra (NOT) DTT (London)	Mid 2006

Inside Satellite/News Television Insider

superb EBITDA, cash-flow the envy of many and a very robust order book. Eutelsat's October looked like a catastrophe for all concerned, but perhaps over the longer term history will take a kinder view of events.

But there's one definite upside in European satellite activity this next year, and it's four little letters that are bringing huge smiles to SES Global AND Eutelsat's faces. It's HDTV. Imagine the scenario. Discovery, for example, launches its Discovery HD Theatre channel over the

US, having to invest in content, of course, and in two feeds (West Coast, East Coast) and make sure its signals are available to cable operators nationwide. Europe has ten 'major' markets, each with specific language variations and different satellites serving many of those markets. SES

FEATURES

serves Germany and the UK, but uses different orbital locations to reach those countries. Result: Discovery, bless them, has to buy two sets of HD capacity from SES Astra. Add in Italy, and it's a third satellite (Eutelsat). Should Discovery want to attack the Canal Plus French market it might offer a language track on an existing 'German' feed from Astra, but if it wants to feed signals into Canal Plus' fierce rival Television Par Satellite, it has to go onto Eutelsat. Confused? You should be. But add in Scandinavia, and it's another couple of satellites. Add in Spain, and it's another. No wonder European satellite players are rubbing their hands with glee at the prospects of European HDTV.

And HDTV is booming. Moreover, it has all happened in the last 12 months. Flat-panel sales (Plasma and LCD) are the one bright spot in an otherwise dull retail sector. BY December 31st there will be at least 7, and perhaps, 9 full HDTV channels.

The UK's BBC, and Britain's main commercial network ITV, have both confirmed they'll have high-definition channels on air next summer. Britain's main commercial broadcaster, ITV, said it would have a high-def test channel on air next summer in time for the soccer World Cup. Simon Fell (Controller, emerging technologies, at ITV) told a Royal Television Society (RTS) meeting it would have a test service next summer. "This all takes time, but we will show a range of programming in HD, and that will include everything we have the rights to show." ITV shares with the BBC the rights to show the World Cup soccer games over the UK. However, there's no confirmation that ITV will be on satellite. Fell told us that a satellite HD signal was materially expensive, and while there was no doubt that ITV would transition to satellite over time, next summer's transmissions were more of a technical trial. "We are testing, for example, different encoders with different

set top boxes. For bandwidth efficiency it is expected we will deploy MPEG4 H264 or AVC encoding."

Fell's comments came just hours after the BBC's director of television, Jana Bennett announced that the BBC would launch a similar 'test' service on DTT in London next summer in time for the World Cup, but the BBC's "trial" would extend to a longer-form service on satellite where it would simulcast its existing BBC1 mainstream entertainment channel in HD, at least during prime-time. The signals would also be available to the UK's cable, and DSL broadcasters. "I hope the World Cup will be one of the treats," said Bennett. "I am keen to see the consumer response and to see a channel permanently on air with BBC1 as the premium channel as soon as possible."

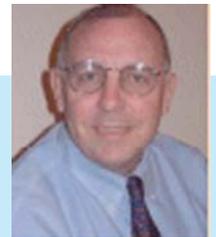
Responding later to questions, Bennett said the World Cup would play a major role in marketing HD to British viewers. She said the BBC wanted to broadcast next summer's World Cup on "all possible platforms" - including Sky.

Unsaid were a bundle of restrictions faced by the BBC. First up, it is forbidden to launch new services or channels ahead of its formal Charter Renewal next year. Hence, the 'tests' and 'trials' services. Its second problem is its current submissions to the government covering proposals for an increase in the BBC's licence fee, and with frequent mentions of the costs of digital conversion following the UK's analogue switch

off scheduled to be completed by 2012. Thirdly, there's the BBC's own internal timetable, which saw a steady transition to high-def over time and concluding in 2010. As one voice told us, "The BBC is like the oft-quoted supertanker. There's no way it can respond that quickly to what's happening in the market. It takes years, not months, to turn this ship around."

But News Corp-backed BSkyB is – not for the first time – already in the HDTV dock. A test 'barker' channel is already on air, and a full service of around 10-12 channels will launch early in 2006. SES, certainly in Europe, has a very strong position in HDTV, and is adding 10 extra transponders to the UK market. Bausch says that by the end of 2007 his Astra colleagues are comfortable talking about 10 transponders-worth of HDTV business (about 40 channels), Looking a little further out, Bausch said they were anticipating that by 2010 there would be around 100 HD channels on Astra alone, or around 20-25 transponders. Not to be outdone, News Corp's Italian operation (Sky Italia) booked a spectacular EUR1bn-worth of transponder capacity for the next 20 years from Eutelsat, much of it earmarked for HDTV. **SM**

London-based **Chris Forrester**, a well-known broadcasting journalist is the Editor for Europe, Middle East and Africa for SATMAGAZINE. He reports on all aspects of the industry with special emphasis on content, the business of television and emerging technologies. He has a unique knowledge of the Middle East broadcasting scene, having interviewed at length the operational heads of each of the main channels and pay-TV platforms. He can be reached at chrisforrester@compuserve.com



REGIONAL UPDATE

Latin America 2005 -- Year in Review

By Bernardo Schneiderman

As in other parts of the world, satellite business grew in Latin America in 2005. Among the major activities in the region this year include:

E-Gov Projects using Satellite communications VSAT terminals continue to growth. New government projects are in development in Argentina, Brazil and Venezuela to launch new satellites for defense, social, meteorological, imaging and air traffic control applications. Satmex is planning to launch Satmex VI after reorganizing their finances in Mexico where they requested an agreement with its creditors.

E-Gov Projects showed promising growth in Latin America during 2005 where Brazil, Colombia, Peru, Chile, Mexico and Venezuela were the leaders in term of number of VSAT terminals that reached during 2005 more than 30,000 VSATs installed. The ITU issued a report during 2005 about Global E-Gov readiness (composite indices of readiness based in web site assessment, telecommunications infrastructure and human resource endowment). In Latin America the top 10 countries considered to be E-Gov ready were: Chile, Mexico, Argentina, Brazil, Uruguay, Colombia, Peru, Panama, Venezuela and Guyana. (See full report at <http://www.unpan.org/egovernment4.asp>)

Below are the main E-Gov projects in the region:

In Brazil the E-Gov project that used VSAT solution is called GSAC. After a new bid was issued to expand the project during late 2004 Comsat International was the winner. The project had the goal to expand the Internet reach to 5,500 sites



Compartel program is being utilized in a remote school in Colombia

plus VOIP application. Additionally of the Internet Access the project had a requirement to delivery 2,200 PC to the sites. During 2006 GSAC is planning to reach more 5,500 point of presence. Besides GSAC project the Brazilian Government is planning for 2006 a new project called PC connected. The project is planning to provide low cost PC's to more than 10 million people and more than 30,000 schools sites. If PC connected is implemented satellite and VSAT solution will be added in more than 10,000 sites to provide Internet in remote and rural schools sites. The Brazilian Government is one of the country interested in the MIT Media Lab low cost laptop computer project that is planning to bring a laptop PC to the market with a price range of US\$ 100.00 per unit during 2006

Colombia is taking E-Gov projects with a very broad focus. Starting to provide during the last five years rural telephony where satellite was the main technology for almost 10,000 sites. The Colombian program is called Compartel. During 2004 Colombia started a new project to provide Internet access. After a competitive bid at the end of 2004 two

major provider deployed during 2005 around 4,800 sites using VSAT's. For the period of 2006-2007 Compartel plan to reach an additional 9,200 sites. Colombia Government is committed to use the Internet to reach all villages and communities to break the digital divide and

VSAT and Satellite will be for sure the communications connectivity.

Satellite Projects in Brazil, Argentina and Venezuela are coming to reality during 2005.

Venezuela was the first country to finalize the purchase of the Chinese Satellite called now Venesat 1. The satellite, which will have a useful life of 15 years, will be launched into space during 2008. The equipments acquisition is within the agreement between the Venezuelan Science and Technology Ministry and the Chinese company Great Wall. The contract stipulates the participation and training of 90 Venezuelan professionals in the satellites construction. Nuris Orihuela, investigation and innovation vice-minister pointed out that the agreement represents the country's entrance to satellite technology. Base in the official news the Venezuelan professionals participating in the construction of the satellite guarantees the countries autonomy in satellite communications. Venesat 1 will provide telecommunications services including telephony, TV, Radio, Internet and teleconference services and

REGIONAL UPDATE



\$100 Laptop PC – MIT Media Lab Project

among the main applications are distance learning, and telemedicine. The Venezuelan Government informed during the contract of Venesat 1 that another satellite for specific function of imaging and monitoring the Venezuelan territory was part of the agreement with the China Government.

Argentina announced during 2005 a plan to build a satellite in country in 2009. Argentina is planning to use Chinese Know How. The Argentine president Nestor Kirchner signed a project for the establishment of ArSat during the end of July. The Argentine company will operate two small satellites manufactured in the country, the first of which will be in orbit in 2009. The satellites to be used by ArSat must be manufactured in Argentina by the State technological company Invap. Invap had already built land observation units. Invap assured that the only task that it will give to third parties would be the communications modules provision. The project would demand US\$ 220 million for the construction and launching of a two tons satellite and 18 transponders (12 in Ku band and 6 in C- Band). The target is to build two satellites, although there are no dates for the second satellite at this time. ArSat will use Satellite 81 West orbital slot that has coverage all over the America region. The orbital slot was removed from Nahuelsat in 2004 since it

did not launch it in the time period planned.

The Brazil SGB project that is called Brazil Geostationary Satellite Project became one of the major projects in Latin America. The project is part of the Brazil Space Program where the mission is to launch 3 geostationary satellites. The project is coordinated by the Ministry of Defense and plan to launch 2 Redundant Satellites with transponders in L, C, Ku and X-Band and a third satellite for meteorological and image sensors. The target of the project is to become operational in 2009. The life cycle of the 2 satellites will be planned for 15 years and the third one for 10 years. The Brazilian Satellite Program has been developed by CTA (Centro Tecnico Aerospacial- Aerospace Technical Center), ATECH Foundation and CPQD (Centro de Pesquisa e Desenvolvimento – Research and Development Center). During the month of October was a decision among the government entities to pass the control of the project for the Brazilian Space Agency AEB to implement the project in 2006.

The expectation of the program is to expand and improve the surveillance in the Amazonian region (Size of the European Continent) and monitoring the air and maritime traffic in the Brazilian Territory. Additionally the other benefits are:

- Control the Air and Maritime Space
 `` direct without the need of foreign

- operators
- Develop the Local Space Industry
- Potential to share the Satellite services with other Latin countries
- Expand the Surveillance in the Amazonian Region
- Expand the surveillance in the Coastal Area and the Ocean limits of Brazil
- Improve the meteorological forecast for several economic sector in Brazil (Agriculture industry, Tourism, Transport, Power Distribution and other main sector of the economy)
- Improve the Logistic of the National Guard in case of Natural Disaster

Mexico Satellite Operator finally is on the way to launch Satmex VI during 2006. After an agreement with the creditors of Satmex in Mexico, Satmex will commence an ancillary proceeding in the United States seeking an order of the US Bankruptcy Court recognizing and giving effect to the Mexican Concurso Mercantil (Equivalent of Chapter 11 in the USA).

Last June Satmex filed a Mexican bankruptcy proceeding, known as a Concurso Mercantil, under the laws of Mexico, and later moved to dismiss the involuntary Chapter 11 petition in the U.S. The Creditors also have the right to come back to the U.S. Bankruptcy Court seeking relief if Satmex 6 is not launched by June 30, 2006. **SM**



Bernardo Schneiderman has over 30 years of experience in the Satellite & Telecom Industry. He is the Business Development and Technical Director of Space & Telecom Division for Futron Corp based in Irvine, CA. USA and is responsible for the West Coast and the International Market. He has global experience in Marketing and Eng. Consulting, Sat and Telecom Carriers, VSAT and Telecom Manufacturers. Mr Schneiderman has been writing for the industry during the last 12 years and can be contacted at bschneiderman@futron.com

VIEWPOINT

Satellites at the Midpoint of This Millennium's First Decade

Bruce Elbert

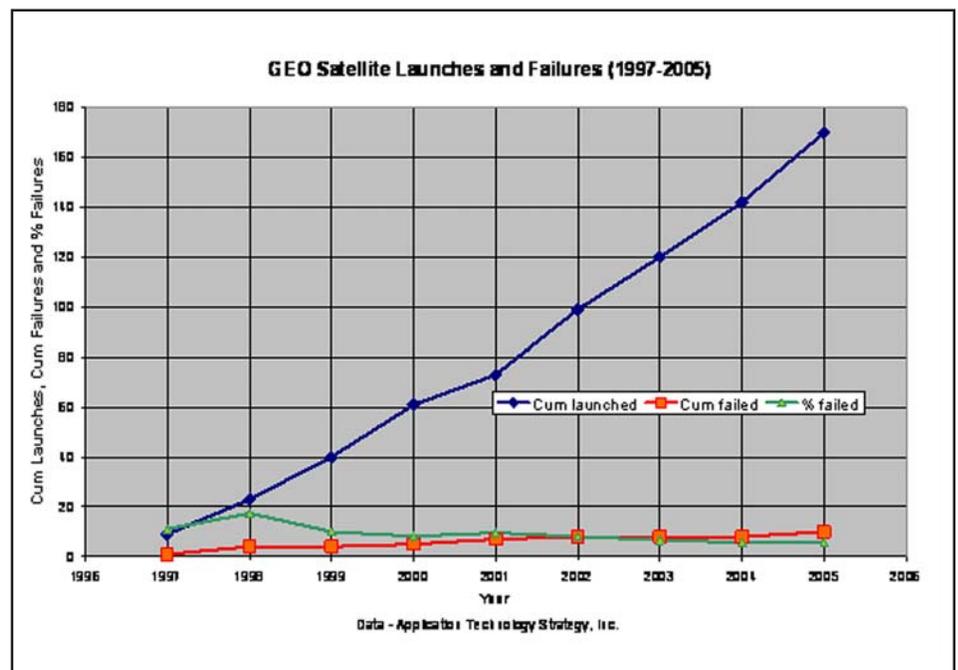
President, Application Technology Strategy, Inc.

The year 2005 draws to close a period that established a new baseline for the satellite communications industry. GEO satellites are definitely “in” as the foundation for extended wireless access from remote areas and as the means to deliver digital content in any form to consumers and businesses alike. Annual revenue reached \$100 billion for the first time, placing commercial satellite communications in proximity to highly visible sectors like movie-making and the market cap of Google. We are also poised for new opportunities that extend wireless reach from short range base stations to broad reaches of land and sea, as well as in the air. In this article, I review the key developments of the past year and consider how things look going forward.

Our first notable event occurred on January 14th, the day I arrived in Honolulu for the Pacific Telecommunications Council (PTC) Conference. Upon arrival at my hotel, I received a phone call from a friend at the National Weather Service in Hawaii informing me that the Intelsat 804 satellite in the center of the Pacific Ocean at 180 had ceased to operate. This, in turn, had taken down an extensive network of links among Pacific islands as well as connections to North America and Asia. It was another wake-up call to users who depend on satellites, highlighting the contradiction between this technology's certainty in orbit and vulnerability to failure. Other satellites were quickly brought on line to restore services and most users were back in operation in a matter of days (this was not universal as some locations had to revert to old, reliable HF radio for months).

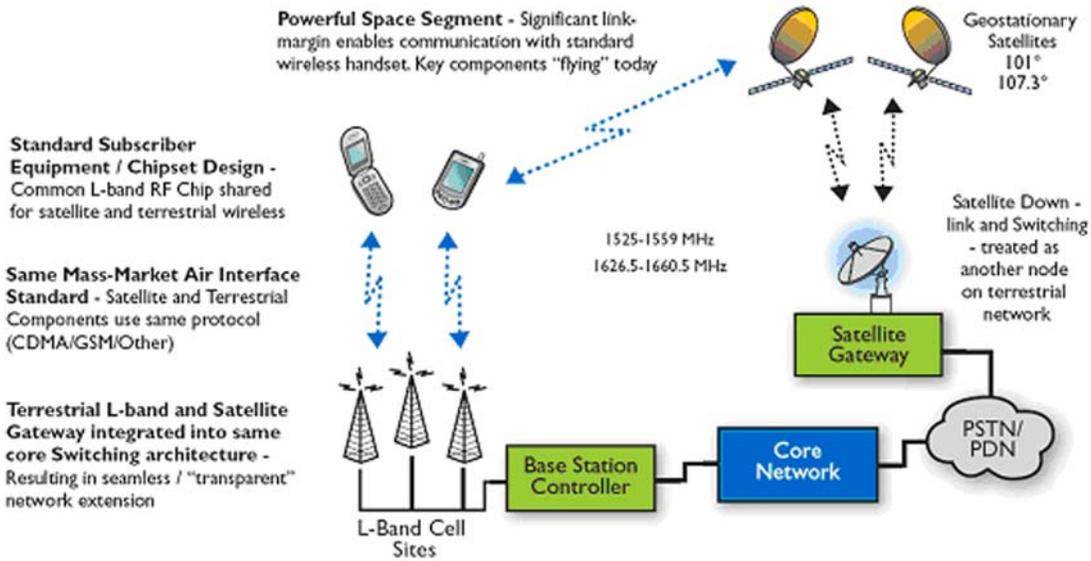
Even with the high-visibility afforded such events, the reliability record of commercial GEO satellites from Intelsat and others remains high and the failure rate overall continues to drop. This is evident from a simple review of satellite history between 1997 and 2005, illustrated below. Out of the total of 170 satellites launched during this period, only 10 experienced total or near total failure. That's a failure rate of 6%, far less than the design criteria used by satellite manufacturers. I realize, of course, that such statistics are nice but failure of the satellite you're on feels more like 100%. For this reason, every critical satellite application demands a flexible backup strategy, making alternate satellite capacity reachable by repointing dishes.

The critical value of satellite services was clearly demonstrated during the hurricane season, as discussed in the November issue of SatMagazine.com. Furthermore, the US Army has decided that GEO satellites can offer the primary link of interconnecting battle-field networks at all force levels. According to the November 2005 issue of *Signal* magazine, published by the Armed Forces Communications and Electronics Association, traditional land-based radio links have proved inadequate to serve “Network-Centric” forces that cannot stop long enough to install cables and erect towers. Rather, “warfighters ... moved quickly, (and) chose not to stop and relied instead on ... satellite communications (SATCOM)”. This now-familiar refrain



VIEWPOINT

Figure 1 – Hybrid Terrestrial/Satellite Wireless Network



Reference: http://www.msvlp.com/nextgen/news/_pdf_launch_/ATCREVNOV16.pdf

individuals will buy anything that says Cisco on it but have never dealt with leading technology and service providers in our industry. Perhaps this will change with the recently-announced acquisition of Scientific Atlanta, a leading set-top box supplier, by Cisco itself.

Traditional two-way VSAT sales have been brisk, thanks to the availability terminals with higher

further endorses the military’s role for GEO satellites in general and commercial Ku-band transponders in particular. This in and of itself is a major development for our industry and will encourage greater innovation in the area of flexible broadband systems using compact dishes that may be operated by administrative rather than technical personnel. There is a very big push as well to maintain these links while a military unit is “on the move”, something which is technically achievable but still expensive to make broadly available to troop units.

The consumer-related satellite sector is bigger and better than ever, with satellite TV a major player on the subscription side of the business and satellite radio now hitting 10 million listeners in the US. In a past article, I discussed that the only technical limitation to these systems is by the radio spectrum allocated to this service. This will be overcome through the use of improved audio compression and higher-powered satellites that could be launched in a few years. In both of these industry segments, satellites, while

individually costly, are sustainable because of the large quantity of paying subscribers. Satellite radio is perhaps unique in that its offering is much different from traditional AM and FM radio, both in terms of content and mobility.

The technologies and services that empower digital content delivery for enterprise-level applications are ready for prime time. In addition, the cost of developing this type of private network is justifiable for a variety of uses. As discussed at the recent SatCon Expo in NYC, familiar brand-names like Home Depot, State Farm Insurance and Wachovia Bank have moved to a content-delivery rather than linear broadcasting mode. These satellite-smart enterprises know full well the benefits of a GEO platform and need no convincing. Yet, the majority of corporations haven’t grasped these benefits for accurate presentation of a visual message at all sites and for a variety of purposes. An issue has been the lack of familiarity and comfort with satellite by main-stay IT managers who end up with network responsibility. Such

data rates at lower prices. Leading supplier Hughes Network Systems introduced the DirecWay 7700 terminal with a much-elevated capability to service high-end data communications applications, and iDirect continued to dominate the government broadband sector. On the consumer side, WildBlue entered service in June with Ka-band satellite dishes and is reported to be achieving good results in the market. Once again, this segment is positioned for growth, this time benefiting from a greater appreciation of the value of satellite links both as primary and backup connections.

Mobile communications is growing in importance, particularly from a broadband perspective. Inmarsat put their first Inmarsat 4, launched last March, into service for the Broadband Global Area Network (BGAN), a service capable of half a megabit per second into a terminal the size of a laptop computer. The satellite places hundreds of small L-band beams on the earth in the same manner as a cellular network; high bandwidth from

VIEWPOINT



from a terrestrial wireless system using cell towers to a satellite under clear line-of-sight conditions. The service has been deemed by the FCC to be feasible and MSV is in favorable position to proceed with its deployment.

The developments identified above all occurred in less than one year and represent several directions of positive action for commercial GEO satellites. I've not covered every segment and application that's appeared and expanded during the year; however, this selection alone demonstrates that next year should produce solid gains for the most capable suppliers. Users on the respective corporate and government sides as well as consumers stand to have more options that give them capability not seen as viable

small terminals is a consequence of the higher RF performance afforded a 9 by 12 meter deployable antenna. The on-board processing payload from EADS, similar in concept to those on the Thuraya and ACeS satellites, provides flexible means of gathering uplink user data flows and delivering them to the Internet and other terrestrial networks. A second Inmarsat 4 satellite was launched successfully on November 8th and will add coverage of the Americas. An additional Inmarsat 4 satellite will fill out a global footprint and replace satellites that served previous mobile users. The BGAN technology foundation delivers asymmetrical IP access but is capable of synchronous ISDN circuit connections if required. The system is flexible in terms of terminals and data rates.

A new generation of mobile satellite systems is promised by the North American MSS operator, Mobile Satellite Ventures (originally known as American Mobile Satellite Corporation, which

launched the MSAT series in the 1990s). MSV introduced the concept of Ancillary Terrestrial Component (ATC), which is illustrated in Figure 1, from MSV's website. The approach is to utilize the L-band spectrum for an integrated mobile satellite like Thuraya and terrestrial service akin to 3G wireless data networks now appearing in developed countries. As this figure illustrates, MSV intends to serve the now-popular hand-held data devices like advanced mobile phones and wireless PDAs. With ATC and a new generation of high-powered L-band satellites, an appropriate handset or laptop can roam

even ten years ago – a time when DIRECTV started to be a recognized name and the entire industry was worth less than \$20 billion. Interestingly, many observers thought our industry was facing a sunset due to fiber optic cables and terrestrial wireless. Sunset passed with the telecom meltdown and our industry has a new horizon for growth and innovation. **SM**



Bruce Elbert has over 30 years of experience in satellite communications and is the President of Application Technology Strategy, Inc., which assists satellite operators, network providers and users in the public and private sectors. He is an author and educator in these fields, having produced seven titles and conducted technical and business training around the world. During 25 years with Hughes Electronics, he directed major technical projects and led business activities in the U.S. and overseas. He is the author of *The Satellite Communication Applications Handbook*, second edition (Artech House, 2004). Web site: www.applicationstrategy.com / Email: bruce@applicationstrategy.com

EXECUTIVE SPOTLIGHT

Interview with Microspace Vice-President Greg Hurt

SatMagazine **Managing Editor Virgil Labrador** recently spoke with Raleigh, North Carolina-based Microspace Communications Corporation's Vice-President for Sales and Marketing, Greg Hurt. Microspace has been a leader in business television networks and is now venturing into many new applications such as digital signage and satellite delivery of digital cinema. Excerpts of the interview:

Q. For the benefit of our readers, can you give us a brief background on Microspace and what markets are you concentrating on?

A. Microspace is a global provider of video, data and audio content delivery utilizing our VELOCITY® satellite service. We have gained significant experience with over 17 years of proven industry experience in dozens of markets. Today, we see a variety of existing and emerging markets that perfectly leverage satellite delivery. Examples would include markets like digital signage, digital cinema and various forms of IP based corporate communications. Currently, we serve a significant portion of the domestic weather services market and have established a leadership position within the financial services, retail, hospitality and corporate communications.

Q. What applications do you think have the most potential for growth in the next few years for Microspace?

A. Based on our success in the market over the years, we are seeing both the digital cinema and digital signage markets reaching a turning point and make significant strides.



Digital signage adoption has seen measurable growth over the past 18-24 months. Networks are being deployed for various reasons including customer education, employee training and corporate branding just to mention a few. The retail market in particular has taken off and is starting to adopt this approach of reaching a targeted customer, with a targeted message and at just the right time. Satellite technology is cost-effective and easy to maintain for content that needs to stay fresh and up-to-the-minute. During the past year, we have implemented satellite delivered digital signage applications in a number of markets including diners, gyms, banks and several types of retail establishments.

Digital cinema is still at an interesting point in adoption. Microspace was

the first company to deliver a standardization version of a digital motion picture via satellite. We most recently delivered Walt Disney's *Chicken Little*, one of the first 3-D animated tales of the year and have a history in delivering other feature films like DreamWork's *Shark Tale*, *Shrek 2* and *Collateral*. It's clear that the studios are starting to move ahead with the delivery of digital motion pictures but there is still a cautious atmosphere. In the next 18 months, we expect to see significant action in this market and are developing the relationships to ensure that we are positioned well for the transition.

As far as Microspace is concerned, a file – whether digital signage or digital cinema – is a file and we have had a long history of being able to deliver these files reliably, economically and securing

EXECUTIVE SPOTLIGHT

via satellite since 1988.

Q. *Microspace has been known as a leader in business television networks, what future does BTV hold?*

A. Business television is not just for the corporate boardroom and is becoming a broad tool for overall corporate communications which includes employee training, distributing corporate messages to employees and connecting business leaders within an organization.

Microspace has also just announced the Expert Resource Network, a resource which allows broadcasters to locate and connect directly to expert resources at universities and corporations to provide expert opinions on most any subject matter. With Microspace technology, the individuals appear on live news broadcasts across the country via remote satellite feeds.

Q. *How is Microspace different from your competitors?*

A. We have been in this business since the late 80's and have proven ourselves in economically and reliably delivering our customer's content. We also continue to place a huge emphasis on strong customer support and take a great deal of pride in the reputation we have been able to establish.

Q. *Are you profitable? When did you achieve profitability and what rate of growth do you expect in the next few years?*

A. We have historically experienced solid year over year revenue growth and expect this trend to continue. We also expect strong customer retention since our customer turnover has always been extremely low.

Q. *What can we expect from Microspace in the next few months?*



A. Microspace will continue to focus on the digital signage market as expect to see a great deal of growth in this area. With the recent release of *Chicken Little* and the studios beginning to commit to digital distribution of features, we are concentrating on developing the right relationships within the industry as well.



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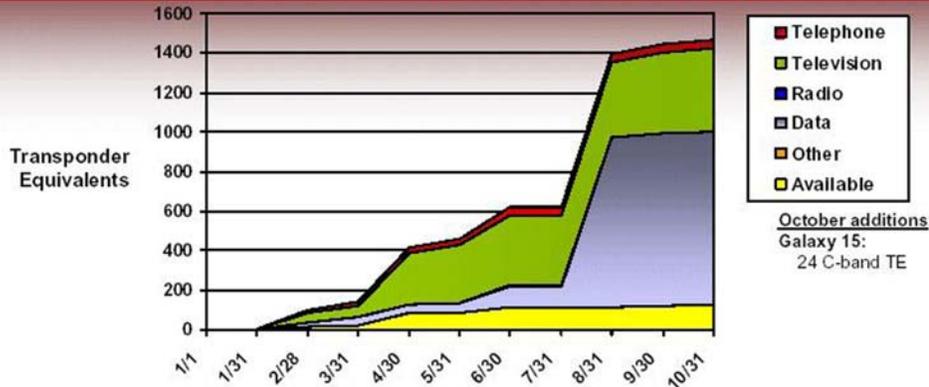
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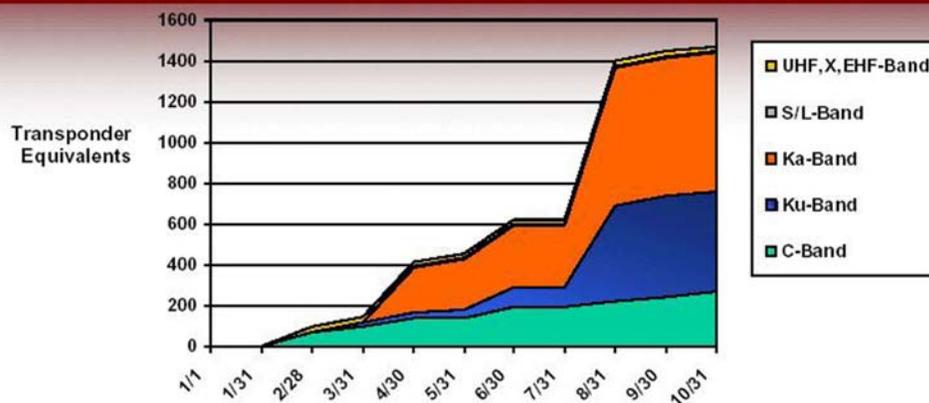


2005 Cumulative 36-MHz Transponder Equivalents Launched by Application



2005 Cumulative 36-MHz Transponder Equivalents by Application												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Telephone	0	8	21	28.3	28.3	42.5	42.5	42.5	42.5	42.5		
TV	0	51	60	259.4	294.4	358.5	358.5	380.5	409.1	429.1		
Data	0	26	39	46.3	46.3	110.4	110.4	860.4	872.6	872.6		
Radio	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		
Other	0	0	0	0	0	0	0	0	0	0		
Available	0	11	23	83	87	111.6	111.6	113.6	120.8	124.8		
Totals	0	96.1	143.1	417.1	456.1	623.1	623.1	1397.1	1445.1	1469.1		

2005 Cumulative 36-MHz Transponder Equivalents Launched by Frequency



2005 Cumulative 36-MHz Transponder Equivalents by Frequency												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
C-Band	0	72	97	137	137	194.3	194.3	218.3	242.3	266.3		
Ku-Band	0	0	18	30	41	95	95	470	494	494		
Ka-Band	0	0	0	222	250	305.6	305.6	680.6	680.6	680.6		
S/L-Band	0	0.1	4.1	4.1	4.1	4.2	4.2	4.2	4.2	4.2		
UHF, X, EHF-Band	0	24	24	24	24	24	24	24	24	24		
Totals	0	96.1	143.1	417.1	456.1	623.1	623.1	1397.1	1445.1	1469.1		

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MARKET INTELLIGENCE

Africa's SatCom Dynamics: Thinking Global, Acting Local in West Africa

By Martin Jarrold

Chief, International Program Development, GVF

That a full 20 transponders on satellites with a footprint over at least part of Africa – a significant proportion of the aggregate satellite coverage of the continent provided by 52 Ku-band beams and 36 C-band beams – are used for GSM backhaul and for international connections means that, for this continent at least, an evaluation of the nature of 21st Century teledensity index has outgrown the measures for so long provided by the traditional Jipp Curve.

An appreciation of today's more complex connectivity parameters is provided in the recently published **Acacia Atlas 2005: Mapping African ICT Growth**. Conceived and led by the Canadian public corporation, the International Development Research Centre (IDRC), the Atlas was available in Tunis, during the World Summit on the Information Society (WSIS) Phase Two proceedings. It has resulted from the work of the *Acacia Initiative: Communities and the Information Society in Africa Program*, an international initiative to empower sub-Saharan communities with the ability to apply information and communication technologies (ICTs) to their own social and economic development. *Acacia* contributes to the *African Information Society Initiative* (AISII) endorsed by the governments of the continent as an action framework to build Africa's ICT infrastructure.

The Jipp Curve, named after Professor A. Jipp who first wrote about plotting



Microspace see growth in the digital signage market.

the relationship between teledensity and wealth (as measured by GDP per capita), generally shows a significant positive correlation, pointing to the fact that teledensity and wealth rise together with a bi-directional causal interrelationship: improved means of communications leads to accelerated economic activity and growth which stimulates further demand for better communications infrastructures, and so on.

The nature of modern teleconnectivity indices, applying in many parts of Africa – as elsewhere in the world – has required that Professor Jipp's expression of the relationship in terms of fixed line teledensity be revised, recognizing that in all but five of Africa's national economies there were more mobile phones

than fixed lines as long ago as 2003. Thus, a more appropriate measure is that of "effective teledensity", meaning either fixed line or mobile density per 100 inhabitants, whichever is the greater.

As reported in the **Acacia Atlas 2005** by Dr Tim Kelly, Head of the ITU Strategy & Policy Unit, in one of Africa's – and the world's – Least Developed Countries (the list of LDCs is defined by the United Nations), Mauritania, *effective teledensity* has grown by more than 42 per cent over the last decade, even though mobile services there were not introduced until as recently as 2000. Thus the Mauritanian *effective teledensity* index is one of more than 10 per 100 inhabitants. Along with Cameroon, Congo, Democratic Republic of Congo, and Uganda, Mauritania has

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achieved a mobile penetration rate that is eight times greater than fixed line penetration.

Also available for the first time at WSIS was the United Nations ICT Task Force Working Group Series publication **Open Access for Africa: Challenges, Recommendations and Examples**, which features an edited version of the **Open and Closed Skies: Satellite Access in Africa** report (download available in both English and French language versions from the homepage at www.gvf.org), which was researched by GVF and funded by the IDRC. Under the UN-ICT Task Force banner, GVF thus had an opportunity once again to reiterate that addressing the deficiencies in access to low-cost communication services is now regarded as an urgent imperative for not only improving the quality of life in African communities, but for significantly enhancing the mission-critical, productivity capabilities of a range of African industries. It is now clearer than ever the extent to which key sectors of African industry (as well as government and civil society) are becoming increasingly heavily reliant on satellite-based communications to overcome the considerable deficiencies in the availability, functionality, reliability and cost-effectiveness of competing communications technologies.

In West Africa, a region taking centre stage in the telecoms arena with its own advanced plans for a regional satellite (NigComSat 1) to service these unprecedented levels of private (and public) sector demand for satellite-based voice, data and video solutions, more countries are adopting and implementing policies to support national ICT development objectives, as graphically illustrated in the **Acacia Atlas 2005**. For the continent as a whole, information from the U.N. Economic Commission for Africa shows that in 2000 only 13 nations had an ICT policy, the figure for 2005 is 28. Again, in 2000,

there were 10 countries in process of developing such a policy, increasing to 15 in 2005. Nations not yet having launched an ICT development process numbered 30 in 2000, but just 10 in 2005.

The stage beyond any one national ICT strategy and policy will be moves towards the integration of several of such

individual national efforts into an internationally orientated and harmonized, pan-regional ICT development strategy. In turn, part of such a pan-regional initiative will focus on the means of harmonizing the policies and regulations which affect the successful deployment – or otherwise – of reliable, speedy, and cost-effective communications solutions in cross-border

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networks, to meet cross-border demands.

As previously reported in this column, a harmonized regional framework for West Africa was agreed as recently as this September, and includes guidelines that are designed to spur investment and development in the West African ICT sector. Once widely adopted, these guidelines should prove an instrumental part of a wider ICT and economic policy to help propel some of the world's poorer nations into the Information Age.

The GVF's suite of **Regulatory & Policy Capacity-Building** tools together with its range of **Courseware for Sustainable Network Deployment**, offer facilitation of the development of harmonized policy and regulation, and also of the business of building a satellite business, thereby contributing to improved access to the range of teleconnectivity options that aggregate into overall solutions in bridging the digital divide, clearing the way to becoming an Information Society.

One of the programs in the suite of **Courseware for Sustainable Network Deployment** – the **Satellite Business Course** – is being offered, appropriately enough at the Digital Bridge Institute in Abuja, Nigeria, on 25 November, as part of the GVF West African Satellite Communications Conference (NewCom WAFSAT). Facilitation of sustainable deployment can be achieved through using the GVF in-house capacity-building portfolio that addresses a broad spectrum of stakeholders through the following education and training courses:

Satellite Sustainability: This course is tailored for ICT professionals in small, medium and large enterprises who have responsibility for designing, procuring, contracting, deploying, maintaining and building sustainable communications solutions on satellite-based networks. Applications addressed can include tele-

medicine, distance learning, disaster recovery/emergency communications, humanitarian and aid, rural tele-centres, cyber cafes, and more. Durations vary from 1-10 days depending on trainees' expertise levels, as well as the type and number of applications to be addressed.

Satellite Business: This course is designed for representatives of large, medium and small enterprises that are engaged in or are thinking about starting businesses or related operations that involve satellite communications. Durations vary from one-half to three days, and the course is offered for organizations that operate in developing nations. Content is not highly technical, with the primary focus covering business aspects, including the communications industry structure and where satellite fits; regulatory frameworks; types of satellite-based business; critical success factors; core competencies; customer management; business strategy & planning; risk analysis; outlook for the future.

VSAT Installation and Maintenance: This GVF training course was created to serve as the global industry standard for installers of bi-directional satellite earth stations. It was established by a consensus of expert volunteers serving in the GVF Education & Training Working Group, whose mission is to identify, formulate and share knowledge that is beneficial to the satellite industry, its shareholders and stakeholders. The course, which consists of three successive levels, culminates with hands-on installation of live systems and a rigorous test. The course duration varies from 1-5 days, depending on the expertise level of the trainees and the number of levels

given. The course has been endorsed by the International Satellite Operators Group (ISOG), as well as by every global satellite operator and regional players.

Introduction to Satellite Communications: This GVF course is designed for professionals who are new to satellite communications, specifically sales, marketing and administration professionals who need a basic understanding of all aspects of satellite communications. This course is typically held in a half- or one-day format. It covers all key areas relating to satellite communications, including industry history, orbits, frequencies, equipment types, bandwidth factors, applications, regulations, and effective business models.

Satellite Technology: This is an academic GVF course developed in conjunction with York University. It is technical and is designed for undergraduate, post-graduate and professional engineers interested in developing a more sophisticated understanding of satellite communications systems. This course, which ranges in duration from 1-3 days, is typically delivered in an academic setting, or for enterprises that have a strong interest in expanding the technical ability of their staff. It covers the primary engineering areas, including protocols (e.g. Internet Protocol), modulation schemes, atmospheric considerations, link budgeting, and much more.

Further information can be obtained by clicking on the **Training** button on the homepage at www.gvf.org. 

Martin Jarrold is the Director, International Programs of the Global VSAT Forum. He can be reached at martin.jarrold@gvf.org For more information on the GVF go to www.gvf.org



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